



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/776,532	02/12/2004	Takashi Ohta	1472-0321P	4116
2292	7590	12/20/2005	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			BOTTORFF, CHRISTOPHER	
			ART UNIT	PAPER NUMBER
			3618	

DATE MAILED: 12/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/776,532	OHTA ET AL.	
	Examiner	Art Unit	
	Christopher Bottorff	3618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 December 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) 5 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 6-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 February 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of Species I, associated with Figures 1-2J in the reply filed on December 8, 2005 is acknowledged. Claim 5 is withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Claims 1-4 and 6-9 are under consideration.

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Drawings

Figures 7 and 8 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

Claims 1-4 and 6-9 are objected to because of the following informalities: The first lines of each of claims 1 and 3 define a hybrid "car" specifically. However, the first lines of each of the dependent claims refer to the hybrid "vehicle" of the independent claim. Appropriate correction is required. For the purposes of examination, are recognized as defining a car specifically rather than the broader family of vehicles.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Art Unit: 3618

Claims 1-4 and 6-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "the rotary shaft of said electric motor" in lines 6-7. There is insufficient antecedent basis for this limitation in the claim.

Lines 22-23 of claim 3 require that "the other one of said carrier and said ring gear" is restricted in rotation by the first rotation restricting device. However, the expression "the other one of" is not clear as to which of the carrier or ring gear is restricted. This expression indicates that one of these components is restricted and one is not restricted by the first rotation restriction device, but the claim does not specify which is restricted and which is not restricted. Lines 9 and 10 of claim 3 use the expression "one of said carrier and said ring gear" to require that either one of these components must be connected to the rotor. However, since the rotor of the electric motor and the first rotation restricting device are not related to one another, the claim does not clearly indicate that the expression "the other one of" on line 22 must be interpreted in conjunction with the expression "one of" on line 9. For the purposes of examination, this limitation of claim 3 has been interpreted as requiring the ring gear to be restricted by the first rotation restricting device, which is consistent with the ring gear brake of the elected species.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4 and 6-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murakami et al. US 6,525,217 in view of Yamaguchi et al. US 5,823,281.

Murakami et al. disclose a hybrid car comprising an internal combustion engine 14 and an electric motor 16 disposed coaxially with a rotary shaft of the internal combustion engine. See Figure 1. A planetary gear mechanism 18 is disposed coaxially with the rotary shaft of the internal combustion engine 14 and a rotary shaft of the electric motor 16. See Figure 1. The planetary gear mechanism comprises a sun gear 24, a ring gear 32, planetary pinions 34, 36, and a carrier 28 supporting the planetary pinions 34, 36. See Figure 1. The rotary shaft of the internal combustion engine 14 is connected to the sun gear, and a rotor of the electric motor 16 is connected to the carrier. See column 6, lines 37-38 and 57-58. A transmission 20 is provided comprising an input shaft, to which power is transmitted from the internal combustion engine 14 and the electric motor 16 via the planetary gear mechanism 18, and an output shaft connected to driving wheels 66, 68. See Figure 1. A first engaging and disengaging device C1 enables and disables transmission of power between the carrier 28 and the input shaft of the transmission. See column 6, lines 38-40. A second engaging and disengaging device C2 enables and disables transmission of power

Art Unit: 3618

between the ring gear 32 and the input shaft of the transmission. See column 6, lines 41-43. A first rotation restricting device B1 properly restricts rotation of the ring gear 32. See column 6, lines 41-44.

The transmission 20 comprises a continuously variable transmission. See Figure 1 and column 6, lines 19-20. The planetary gear mechanism 18 is a double pinion type comprising an inner pinion 34 engaged with the sun gear 24 and an outer pinion 36 engaged with the ring gear 32 as the planetary pinions. See Figure 1. A control device 104 is provided that controls states of the first and second engaging and disengaging devices and the first rotation restricting device. See column 9, lines 64-67.

Murakami et al. does not disclose that a rotation restricting device properly restricts rotation of the rotor of the electric motor or that the control device controls the rotation restricting device as claimed. However, Yamaguchi et al. teach the desirability of properly restricting rotation of a rotor of an electric unit 16 with a rotation restricting device "B" and using a control device to control the rotation restricting device "B" as claimed. See Figure 1; column 5, lines 22-27; and column 7, lines 9-17. (Although Yamaguchi et al. use the term "generator" to characterize electrical unit 16, such a device may inherently operate as a motor and as a generator and may be characterized as a motor, a generator, a motor/generator, or a generator/motor. This principal is old and well known in the art and is stated more definitively in later documents produced in relation to the structure disclosed in US 5,823,281, which are discussed briefly in the conclusion section of this office action.)

The rotation restriction device "B" of Yamaguchi et al. is controlled to stop the rotor of the electric motor 16 when the driving wheels are driven using only an output from an internal combustion engine 11. See column 6, lines 8-12, 17-19, and 22-24. The rotation restricting device "B" is further controlled such that restrictions imposed on rotation of the rotor of the electric motor 16 are eliminated so as to operate the electric motor 16 as a power generator when regenerative braking conditions are satisfied while the driving wheels are driven using only an output from said internal combustion engine. See column 6, lines 19-22.

From the teachings of Yamaguchi et al., providing the apparatus of Murakami et al. with a second rotation restricting device that properly restricts rotation of the rotor of the electric motor would have been obvious to one of ordinary skill in the art at the time the invention was made. This would allow the rotor to be stopped when desired. From the teachings of Yamaguchi et al., stopping the rotor of the electric motor of Murakami et al. with the second rotation restricting device when the driving wheels are driven using only an output from the internal combustion engine would have been obvious to one of ordinary skill in the art at the time the invention was made. This would reduce wear on the electric motor by preventing unnecessary rotation of the rotor when the motor is not needed. From the further teachings of Yamaguchi et al., eliminating restrictions imposed on rotation of the rotor of the electric motor of Murakami et al. when regenerative braking conditions are satisfied while the driving wheels are driven using only an output from said internal combustion engine would have been obvious to one of ordinary skill in the art at the time the invention was made. This would allow the motor

Art Unit: 3618

to operate as a generator to generate electricity for use by electrical equipment on the car.

In regard to claim 8, the examiner takes official notice that the desirability of driving the driving wheels of a hybrid car using only an output from an internal combustion engine when the car is running at an intermediate or high speed was old and well known in the art at the time the invention was made. Driving the driving wheels of Murakami et al. using only an output from the internal combustion engine when the car is running at an intermediate or high speed would have been obvious to one of ordinary skill in the art at the time the invention was made. This would prevent energy loss from the car's battery, which would result if electric energy is used to power the motor at high speeds. Thereby, the car's electrical power can be conserved.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Yamaguchi et al. US 6,722,457 and Yamaguchi et al. US 2002/0112901 disclose a hybrid car arrangement that includes the same electric unit 16 introduced in earlier US Patent No. 5,823,282 to Yamaguchi et al. In these succeeding patent applications, unit 16 is recognized as inherently having the properties of both a generator and a motor and can be fairly characterized as both a generator and a motor. See column 2, lines 27-28 of US 6,722,457 and paragraph 0033 and lines 1-2 of paragraph 0034 of US Patent Application Publication 2002/0112901.

Art Unit: 3618

Moroto et al., Schmidt US 5,558,588, Schmidt US 5,577,973, Takaoka et al., Tsujii et al., Tabata et al., Mii et al., Yamaguchi et al. US 6,135,914, Baumgaertner et al., Tanuguchi et al., Takemura et al., Lehongre, Takano et al., Morisawa, Hata et al. US 6,691,809, Kojima, Yamaguchi et al. US 6,823,250, Aoki et al., Hata et al. US 6,886,648, and Ando et al. disclose hybrid car arrangements.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher Bottorff whose telephone number is (571) 272-6692. The examiner can normally be reached on Mon.-Fri. 7:30 a.m. - 4:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris Ellis can be reached on (571) 272-6914. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Christopher Bottorff